positions of the chief spots of the group for the time of total eclipse, referred to the Sun's center, as follows:—

Position Angles.	Distance.
71°.8 E. of N.	13′.4
77 .9	13 .2
77 .5	14 .8
80 .5	14 .2
82 .0	14 .8

The estimated position of the vertex falls within the spot group; and it is scarcely possible to doubt that the disturbance in or near the photosphere is intimately related to the disturbed conical volume of the corona. Whether the coronal and photospheric disturbances are related to each other as cause and effect, or, more probably, as joint effects of a more general cause, is not known.

The subject takes on renewed interest in view of Professor HALE'S recent discovery of cyclonic motion or vortices in sunspots and surrounding regions.

W. W. CAMPBELL,
S. ALBRECHT.

1908 July 31.

FLINT ISLAND CORONA.

In No. 119 of these *Publications* appeared half-tone illustrations of the solar corona from photographs made by the Crocker Expedition to Flint Island.

In No. 120 I called attention to the fact that the prints supplied by an Eastern engraver and printer were inferior to the proof-sheets of the illustrations, and that the printer had made an error in orienting the smaller coronal subject. In view of these facts, acknowledged by the engraver, new prints of the two subjects have been supplied by him. They are distributed with the present copy, No. 121. It is advised that members insert them in No. 119 to replace the poorer prints.

There is perhaps no astronomical subject more difficult to reproduce by mechanical process than the solar corona, and it is necessary to recognize that in the best half-tone reproductions the delicate details of structure and the minute differences of intensity are almost wholly lost. In view of the

great injustice done to the merits of the original negatives and the correspondingly erroneous impressions conveyed by the prints on paper, it is a question whether an attempt to publish the coronal photographs by such methods is not a mistake. Every one who proposes to make a careful study of coronal subjects must depend upon the original negatives or copies on glass made from them.

W. W. CAMPBELL.

THE PARTIAL SOLAR ECLIPSE OF JUNE 28, 1908.

The beginning and ending of the eclipse were observed with the 36-inch refractor. The object-glass was capped down to eight inches in diameter, and a neutral-tinted glass covered the eye-piece. The times of apparent contact of Sun and Moon were noted, as follows:—

Beginning.. $6^h\ 20^m\ 39^s$ A.M., Pacific Standard Time.
Ending..... 8 6 13 A.M., " " "

It is well known that the estimated time of beginning of eclipse is especially subject to error, for the reason that the observer does not see the Moon's approach, but is suddenly made aware that the Moon has entered upon the Sun's image.

Special but unsuccessful efforts were made to see the Moon's limb extending outside of the Sun's image: only that part of the Moon's limb projected on the Sun was visible. Dr. ALBRECHT also observed the Moon's limb immediately following the beginning of the eclipse, but could not trace it beyond the Sun's edge. He assisted in all the above observations.

The observations were all made through thin clouds. The beginning occurred with the Sun low in the sky and the seeing rated as I on a scale of V (perfect). The end occurred with seeing II.

W. W. CAMPBELL.

June 29, 1908.

OBSERVATIONS OF THE PARTIAL ECLIPSE OF THE SUN JUNE 28, 1908.

The various phases of this eclipse were observed with the object of seeing whether or not the dark body of the Moon could be seen projected against the inner, and very bright, parts of the corona.